ing the deleterious effects of the dying materials upon the hat itself, which frequently does great injury.

It is considered by the patentee, that the process of dying hats will be greatly facilitated, and the colour improved, by occasionally removing the hats from the dye vat or copper, and exposing them to the oxygen of the atmosphere; and it is also observed, that the colour of the hats suffers injury by touching the sides of the vat or copper in dying, and in being pressed against each other. In order, therefore, to remove the hats occasionally from the dye copper with convenience and facility, and at the same time prevent their being brought in contact while inmersed in the dying liquor, an apparatus is proposed by which these objects may both be effected.

One method of constructing the apparatus is to make a vat, or dye-kettle in the form of a half cylinder, with flat ends; within this, a hollow frame work wheel is made to revolve, like a grindstone in its trough; one half of this wheel, when placed upon the kettle, will be immersed in the dying liquor, and the other half exposed to the air. Within the rim of this wide wheel there are pegs upon which the hats to be dyed are placed, so that as it revolves they are successively passed into, and out of the dying liquor.

This wheel may either be kept revolving with a very slow motion, by gear connecting its axle to any moving power, or it may be turned half round at intervals of about ten minutes apart; by which means, the hats hung upon the pegs will be alternately immersed for the space of ten minutes in the dying liquor, and then for the same space exposed to the atmospheric air.

In this way it is considered that the process of dying hats may be greatly facilitated and improved, as the occasional transition from the dye vat into the air, and from the air again into the dye, will enable the oxygen of the atmosphere to strike the dye more perfectly and expeditiously into the materials of which the hat is composed, than by a continued immersion in the dye for a much greater length of time.

A variation in the mode of performing this process, is suggested, and the apparatus proposed to be employed, is a square vat or vessel to contain the dying liquor; and a frame or rack having a number of pegs placed in it for hanging the hats upon, which are about to be dyed, in a similar manner to the wheel above described. This frame or rack is suspended by cords from a crane, and may in that way be lowered down with the hats into the vat, or drawn up and exposed to the atmosphere; which changes are recommended to be made every ten minutes until the dying is completed.

[*Newton's Journal.*

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## *Account of a patent granted to* JOHN ROTHWELL, *Tape Manufacturer, for his Invention of an Improved Heald or Harness for Weaving.*

THE object of the patentee, in the construction of these improved healds, or harness for guiding the warp threads in a loom, appears to be to afford greater space for the passage of the warp threads, as the sheeds open, or pass each other, than is afforded in the ordinary kind of healds employed for the weaving of fine fabrics.

It is proposed to make the loops of the healds double, that is, passing over the shafts at top and bottom, and meeting both at the back and front; and also that the headles shall be formed by long and short loops alternately; that is, one of the upper loops being long, and the lower loop connected to it, short, the next upper loop is to be short, and its lower loop long, and so on alternately. By these means, the knots of the one series of loops, will be a little distance above the knots of the other series of loops, and the warp threads passed between these knots will be depressed as the heald descends, by the upper series of knots, and raised as the heald ascends by the lower series of knots for the passage of the shuttle between them; the threads being thereby enabled to pass each other with greater freedom, and of consequence less friction, the space for the warp being open in the middle.

Healds are usually made of woollen or hempen cord, twisted very hard, and called heald or headle yard; these improved healds may be made of the same material, or they may be fine wires, which in some cases would perhaps be preferable. [*Ib.*

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## *Account of a patent granted to* John Frederick Smith, *of Dunstan Hill, Chesterfield, in the County of Derby, Esq. for his Invention of Improvements in the process of Drawing, Roving, Spinning, and Doubling Wool, Cotton, and other fibrous substances.*

The patentee has discovered that it is very desirable, in the processes of roving, spinning, and doubling of wool, cotton, and other fibrous substances, to prevent, as much as possible, the fibres of the material being disturbed, or drawn out of the positions in which they were first placed by the carding engine; and in consequence of this discovery, it is directed that in all the future operations to which the fibrous materials may be subjected, whether of roving, spinning, or doubling, that the fibres should be carried through the several engines in the same direction, that is, always beginning with the end which was first delivered, or wound in the preceding machine; and this is the invention of improvements in the processes of roving, &c. which constitutes the subject of this patent.

The instructions of the patentee, in carrying this invention into effect are, that the operator should observe carefully which end of the sliver first came from the carding engine, and of consequence to introduce that end first into the roving machine, and continue to observe the same direction of the fibres in all the subsequent stages of operations, that is, spinning, &c. And here it is to be observed, that if the rovings are conducted into cans, which is sometimes the case. that then, cans with their two ends open are to be used, because by